SOILS REPORT

on the

Subsurface Soil Conditions
at the proposed Septic Drainfield Site
Takotna, Alaska

Prepared for

Alaska Area Native Health Service Environmental Health and Engineering Branch 222 W. 8th Avenue #65 Anchorage, Alaska 99513-7561

includes Laboratory Test Results performed by

A.W. Murfitt Company, Inc.
Arctic Civil and Geotechnical Engineering Consultants
13810 Venus Way
Anchorage, Alaska 99515

Prepared by
Timothy K. Edwards

Design Engineer

Alaska Area Native Health Service
Environmental Health and Engineering Branch

August 29, 1991

Robert Leo Wilson CE - 8095

TABLE OF CONTENTS

<u>Section</u>			•	Page
Introduction				1
Field Investigation		,		1
Background Information	on the Site			1
Findings at the Site				2
Results of Field Invest	igations and l	Laboratory	Testing	2
Recommendations and oth	er Considerat	ions		3

Appendix:

Site Plan: Test Pit Locations

Test Pit Logs

Laboratory Test Results (from A.W. Murfitt Company, Inc.)



INTRODUCTION

This report presents the results of an investigation of subsurface soil conditions at the site of a proposed septic drainfield in Takotna, Alaska. The completed soils investigation work consisted of digging a total of three (3) test pits, obtaining two (2) soil samples from each test pit, performing laboratory testing on samples taken from the test pits, and preparing a formal engineering report documenting the findings.

The recommendation and other considerations presented in this report have been developed from the test pit digging and the laboratory testing performed by A.W. Murfitt Company, Inc. on the samples that were collected in the field.

FIELD INVESTIGATION

Subsurface soil conditions were evaluated at the proposed septic drainfield site on July 23, 1991. A total of three (3) test pits were dug. These test pits were dug at the proposed location of the septic drainfield and are at the locations shown on the Site Plan, attached in the Appendix of this report. The test pits were dug with a backhoe that is owned by the Village of Takotna. The test pits were approximately three feet wide and were dug to a depth of approximately seven feet below the natural ground surface. The excavation work was performed by Mr. Dick Newton, Village of Takotna equipment operator, and Tim Edwards performed the field evaluation.

Samples were collected from the sidewalls of the test pits. Samples collected in the field were transported back to Anchorage and sent to A. W. Murfitt Company, Inc. for testing and examination. Laboratory testing consisted of sieve and hydrometer analysis, frost classification, percent organics and permeability. The test results are discussed in the "Results of Field Investigations and Laboratory Testing" section of this report.

BACKGROUND INFORMATION ON THE SITE

The village of Takotna is located on the north bank of the Takotna River 14 miles west of McGrath and approximately 240 miles northwest of Anchorage, in the Kilbuck-Kuskokwim Mountains.

The village is elevated about 30 feet above the mean level of the Takotna River and is about 150 feet from its shoreline. Gold Run Creek, the village water source, flows into the Takotna River about 250 feet west (upstream) of the village.

The region's climate is continental, characterized by short, hot summers, and long, cold winters. Temperature extremes range from -64F to 90F. The mean annual temperature for Takotna is 25.2 F. The mean annual precipitation is 16 inches and the mean annual snowfall is 75 inches.

The area has moderate to thin layers of permafrost, generally found under any thick vegetative mat.

Soils in the area are generally well drained alluvial deposits of silt and sand. The vegetation in the area include birch and spruce trees and tall grasses. Underlying deposits are largely greywacke and shale.

The proposed septic drainfield site is located in an area that has been cleared of most forest leaf litter/PEAT (PT)/ organic mat.

FINDINGS AT THE SITE

The subsurface soils in the proposed septage drainfield site generally consists of a layer of sandy silt 2.5 ft to 4 ft below the ground surface. This in turn is underlain by a 3 inch to 5 inch reddish grey clay. The next deepest soil profile identified was a 3 ft to 4 ft layer of SANDY GRAVEL (GP).

No groundwater was encountered in any of the test pits, and there was no mottling or other evidence of a seasonally high water table.

RESULTS OF FIELD INVESTIGATIONS AND LABORATORY TESTING

The results of the laboratory testing conducted for this investigation are shown on the Laboratory Test Results, all of which are contained in the appendix of this report.

The samples were classified (according to the Unified Soil Classification System) in the laboratory.

Natural soil moisture contents in the SILT (ML) ranged from 28.2% to 54.5%.

Natural soil moisture contents in the SANDY GRAVEL (GP) ranged from 5.4% to 14.3%.

The organic contents in the SILT (ML) ranged from 11.6% to 25.4%.

The organic contents in the SANDY GRAVEL (GP) ranged from 11.5% to 1.4%.

The permeability test data showed that the SILT (ML) has a permeability ranging from 1.6 \times 10^-5 cm/sec to 5.0 \times 10^-5 cm/sec.

The permeability test data showed that the SANDY GRAVEL (GP) ranged from 6.5×10^{-4} cm/sec to 1.3×10^{-2} cm/sec.

RECOMMENDATIONS, CONCLUSIONS, AND OTHER CONSIDERATIONS

Based on the results of the excavation of the soil test pits, the in-situ soils investigation, and subsequent laboratory testing of soils samples; it is felt that the soil characteristics of the proposed septage disposal site will support the design and construction of a septic drainfield consisting of standard infiltrators at a 0% slope and at a depth of 4 ft minimum ground

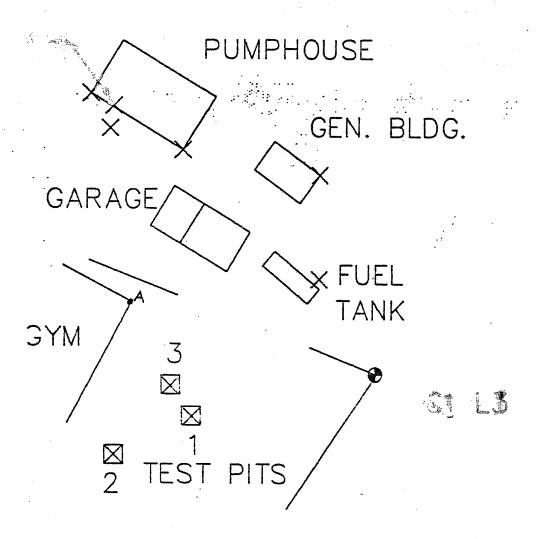
The chosen site for the proposed septic drainfield is down gradient of the new water intake point on Gold Run Creek. This water intake point is the only water intake that serves the entire community. There is one known private well down gradient of the proposed septic drainfield located approximately 400 ft away.

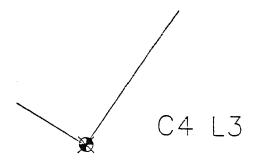
The soil in the area of the site of the proposed drainfield consists of a predominantly SANDY GRAVEL (GP) stratum below the 4 ft depth of the septic drainfield. This SANDY GRAVEL (GP) stratum has relatively high permeabilities (as listed in the "Results of Field Investigations and Laboratory Testing") which makes this site highly suitable for a septic system drainfield.

The proposed septic system drainfield site is located in an area that has been previously cleared of all surface vegetation. The site has also been previously leveled. The absence of permafrost makes this site highly suitable.

It is therefore concluded that this proposed septic drainfield site is a good location which meets the necessary siting criteria.

Site Plan: Test Pit Locations





TAKOTNA, ALASKA
proposed septic dreinfield

TEST PIT #1

July 23, 1991

TURBL GROWND SURFACE

ML

36___

CLAY LAYER 41"

رم ک

777"

NATURAL GASUNO SURFACE

ML - Inorganic silts, very fine sends, rock floor, silty or cloyey fine sonds

GP- Poorly greated graves and gravel-send mixtures, little or no fines

TAKOTNA, ALASKA
proposed septic drenticle

TEST PIT #2

CLAY LAYER 43"

48"

GP

ML- Inorganic sitts, very
fine sands, rock flour,
sitty or clayey fine
sands

GP- poorly graded gravel
and gravel-sand mixtulittle or no fines.

TAKOTNA, ALASKA
proposed septic drainfield

TEST PIT #3

July 23, 1991

CLAY LAYER 43"

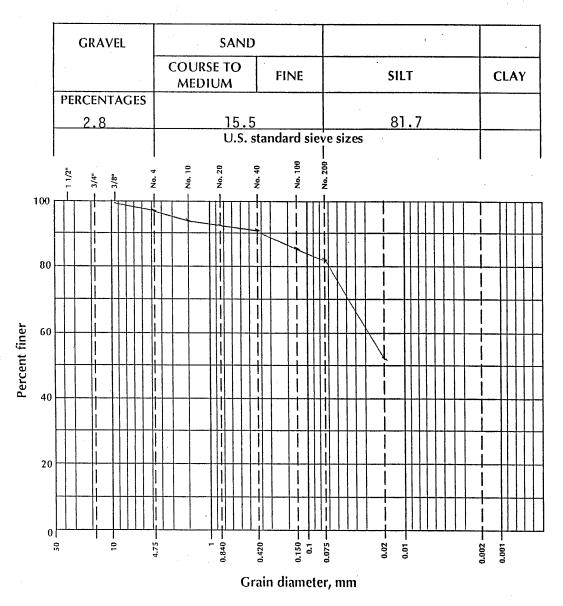
SP

NETURAL GROUND SURFACE

GP- Poorly graded gravels or gravel-sond mixtures, little or no fines.

SP- Poorly graded sands and gravelly sands.

PROJECT <u>Public Health Service, Takotna, AK</u>	JOB. NO. 91-202.13
OCATION OF PROJECT Takotna, Alaska	BORING/TEST PIT NO. 1
SAMPLE NO. 1-1	DEPTH OF SAMPLE 3 Ft.
TESTED BYJDR/AWM	DATE OF TESTING 7/27 to 8/16/91



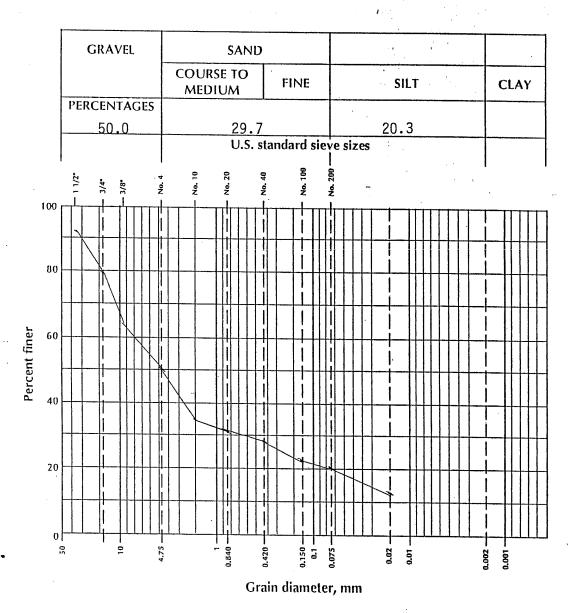
SOIL DESCRIPTION 28.2 % Natual Moisture, 52.0 % -0.02 mm., 11.6 % Organics

Permeability, k= 1.6 x 10⁻⁵ cm/sec.

SOIL CLASSIFICATION SILT (ML) with SAND, F-4.

ANVINA C. C	OTHER TESTS	PLATE ·
A.W. Murfitt Company CONSULTING ENGINEERS & TESTING		

PROJECT_Public_Health_Service, Takotna, AK	JOB. NO. 91-202.13
OCATION OF PROJECT Takotna, Alaska	BORING / TEST PIT NO 1
SAMPLE NO. 1-2	DEPTH OF SAMPLE 6 Ft.
TESTED BY JDR/AWM	DATE OF TESTING 7/27 to 8/16/91



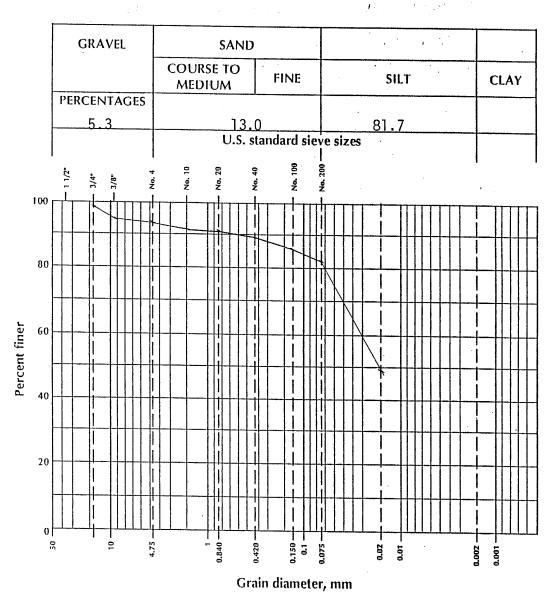
SOIL DESCRIPTION 14.3 % Natual Moisture, 12.6 % -0.02 mm., 7.9 % Organics

Permeability, k= 6.5 x 10⁻⁴ cm/sec.

SOIL CLASSIFICATION SANDY GRAVEL (GP) with SILT, F-2.

AW Market Commen	OTHER TESTS	PLATE
A.W. Murfitt Company CONSULTING ENGINEERS & TESTING		

PROJECT Public Health Service, Takotna, AK	JOB. NO. 91-202.13
OCATION OF PROJECT Takotna, Alaska	BORING / TEST PIT NO. 2
SAMPLE NO. 2-1	DEPTH OF SAMPLE 4 Ft.
TESTED BY JDR/AWM	DATE OF TESTING 7/27 to 8/16/91



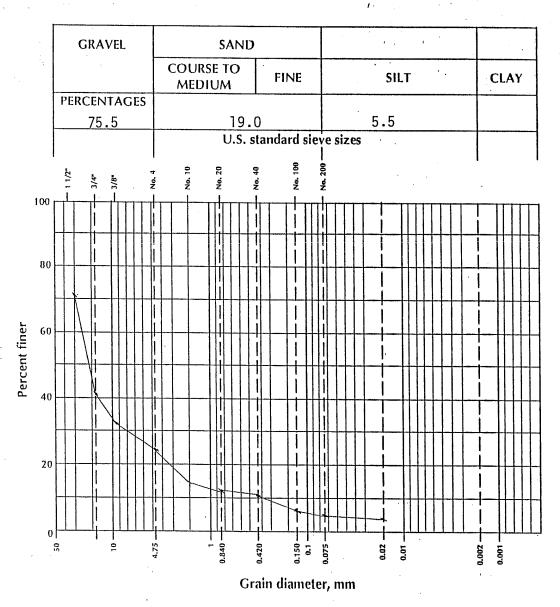
SOIL DESCRIPTION 54.5 % Natual Moisture, 49.1% -0.02 mm.,25.4 % Organics

Permeability, k= 5.0 x 10⁻⁵ cm/sec.

SOIL CLASSIFICATION SILT (ML), trace SAND and GRAVEL, F-4.

AW Market Comme	OTHER TESTS	PLATE
A.W. Murfitt Company CONSULTING ENGINEERS & TESTING	1	

PROJECT <u>Public Health Service, Takotna, AK</u>	JOB. NO. 91-202.13
OCATION OF PROJECT Takotna, Alaska	BORING/TEST PIT NO. 2
SAMPLE NO. 2-2	DEPTH OF SAMPLE 7 Ft.
TESTED BYJDR/AWM	DATE OF TESTING 7/27 to 8/16/91



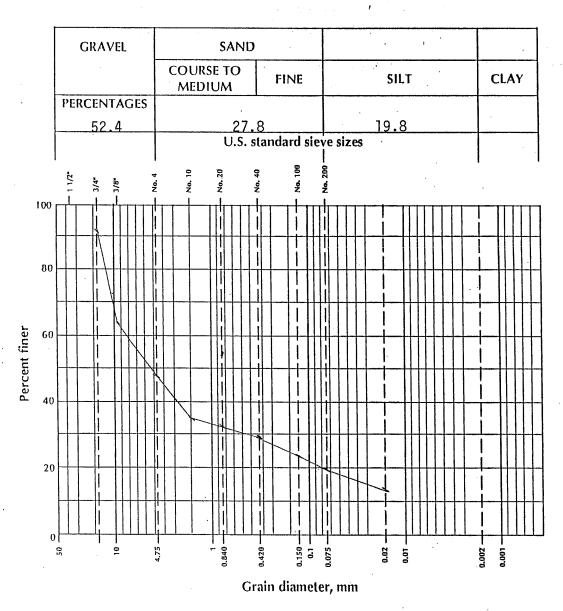
SOIL DESCRIPTION 5.4 % Natual Moisture, 3.3 % -0.02 mm., 1.4% Organics

Permeability, k= 1.3 X 10⁻² cm/sec.

SOIL CLASSIFICATION GRAVEL (GP) with SAND, trace SILT, F-1.

ANVINACUE	OTHER TESTS	PLATE
A.W. Murfitt Company		
CONSULTING ENGINEERS & TESTING		

PROJECT_ <u>Public_Health_Service, Takotna, AK</u>	JOB. NO. 91-202.13
OCATION OF PROJECT Takotna, Alaska	BORING / TEST PIT NO. 3
SAMPLE NO. 3-1	DEPTH OF SAMPLE 3 Ft. 2 In.
TESTED BY JDR/AWM	DATE OF TESTING 7/27 to 8/16/91



SOIL DESCRIPTION 14.2% Natual Moisture, 13.5% -0.02 mm., 11.5% Organics

Permeability, k= 1.8 x 10⁻³ cm/sec.

SOIL CLASSIFICATION SANDY GRAVEL (GP) with SILT, F-2.

ANVINECLE	OTHER TESTS	PLATE
A.W. Murfitt Company		·
CONSULTING ENGINEERS & TESTING		

PROJECT <u>Public Health Service, Takotna, AK</u>	JOB. NO. <u>91-202.13</u>
DCATION OF PROJECT Takotna, Alaska	BORING / TEST PIT NO.]
SAMPLE NO. 1-1	DEPTH OF SAMPLE 3 Ft.
TESTED BY JDR/AWM	DATE OF TESTING 7/27 to 8/16/91

	į																				Т												_					1
		(GRA	٩V	EL.									\ <u>\</u>	ID)					4										 							4
		,									JRS DI					ľ	l	FII	٧E								S	IL.	T					•	CL	A١	ľ	
		PER			AC	GE	S																															
			2.	8_				_]	<u>5</u>	<u>. E</u>	sta	m	da	rd	si	_ ev	е	si	70			<u>8</u>	31	<u>. 7</u>	7	 							_
														•••							ı		-															
	100	- 11/2" - 3/4" - 3/8"				No. 10 No. 10 No. 10 No. 10 No. 10 No. 10 No. 100 No. 200 No. 100 No. 200 No.				57 7 8 8																												
	100					T			1	1	_								1								 											_
	80																/	/	1	+							L							 				
	00																		1								 -											L
i.	60		1																								 											
Percent finer	80		j																								1											L
Perce	40																																	 				
																											l L							l L				
	20												 _														 -							 -				L
	20																										 -											
	0																		ļ								<u> </u>											
	0	900	1	,	2			4.75 -				-	0.840			0.420			0.150 —	0.1	,	0.075					0.02	5	•					0.002 —	0.001			
															G	ra	in	di	an	ıe	te	r,	m	m	ı													

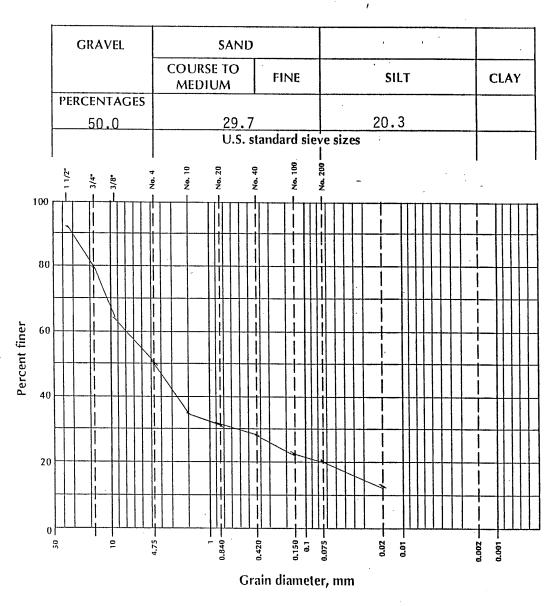
SOIL DESCRIPTION 28.2 % Natual Moisture, 52.0 % -0.02 mm., 11.6 % Organics

Permeability, k= 1.6 x 10⁻⁵ cm/sec.

SOIL CLASSIFICATION SILT (ML) with SAND, F-4.

ANVINE C. C	OTHER TESTS	PLATE
A.W. Murfitt Company		
CONSULTING ENGINEERS & TESTING		

PROJECT <u>Public Health Service</u> , <u>Takotna</u> , <u>AK</u>	JOB. NO. 91-202.13
OCATION OF PROJECT <u>Takotna</u> , <u>Alaska</u>	BORING / TEST PIT NO 1
SAMPLE NO. 1-2	DEPTH OF SAMPLE 6 Ft.
TESTED BYJDR/AWM	DATE OF TESTING 7/27 to 8/16/91



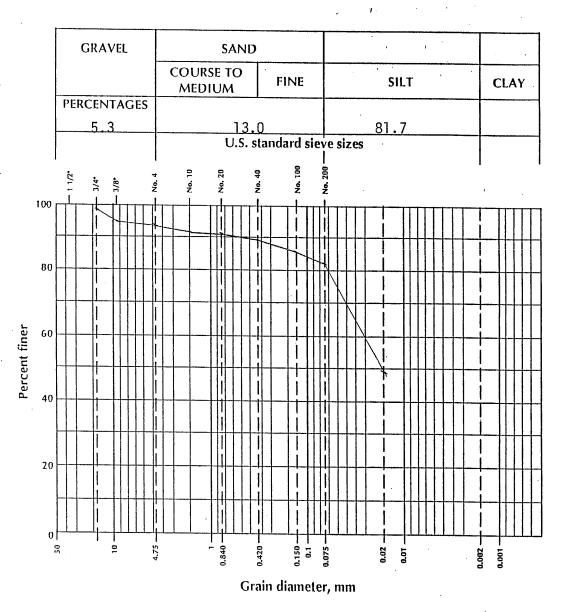
SOIL DESCRIPTION 14.3 % Natual Moisture, 12.6 % -0.02 mm., 7.9 % Organics

Permeability, k= 6.5 x 10⁻⁴ cm/sec.

SOIL CLASSIFICATION SANDY GRAVEL (GP) with SILT, F-2.

ANVINA	OTHER TESTS	PLATE
A.W. Murfitt Company		
CONSULTING ENGINEERS & TESTING		

PROJECT <u>Public Health Service</u> , Takotna, AK	JOB. NO. 91-202.13
OCATION OF PROJECT <u>Takotna</u> , Alaska	BORING / TEST PIT NO. 2
SAMPLE NO. 2-7	DEPTH OF SAMPLE 4 Ft.
TESTED BY JDR/AWM	DATE OF TESTING 7/27 to 8/16/91



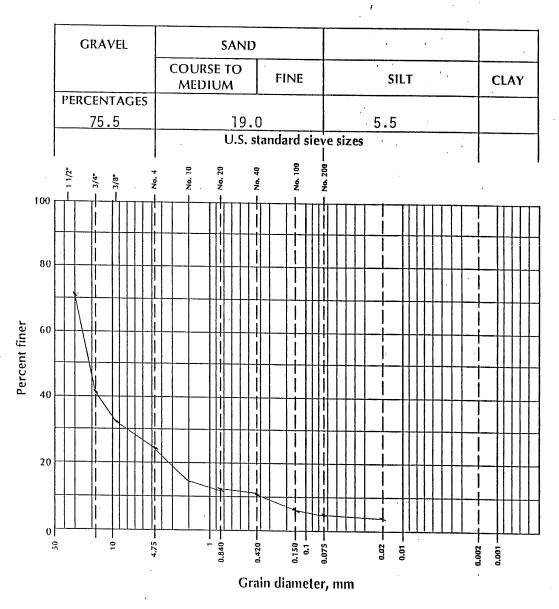
SOIL DESCRIPTION 54.5 % Natual Moisture, 49.1% -0.02 mm.,25.4 % Organics

Permeability, k= 5.0 x 10⁻⁵ cm/sec.

SOIL CLASSIFICATION SILT (ML), trace SAND and GRAVEL, F-4.

AW/ Marghay Comment	OTHER TESTS	PLATE
A.W. Murfitt Company		
CONSULTING ENGINEERS & TESTING		

PROJECT <u>Public Health Service</u> , <u>Takotna</u> , <u>AK</u>	JOB. NO. 91-202.13
OCATION OF PROJECT Takotna, Alaska	BORING / TEST PIT NO. 2
SAMPLE NO. 2-2	DEPTH OF SAMPLE 7 Ft.
TESTED BY JDR/AWM	DATE OF TESTING 7/27 to 8/16/91



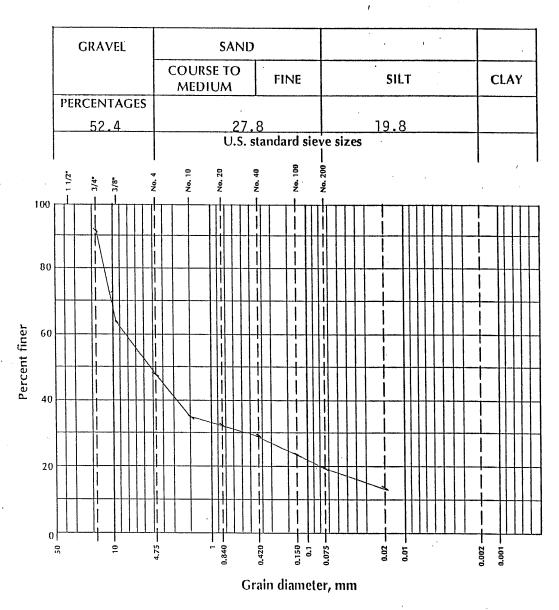
SOIL DESCRIPTION 5.4 % Natual Moisture, 3.3 % -0.02 mm., 1.4% Organics

Permeability, k= 1.3 X 10⁻² cm/sec.

SOIL CLASSIFICATION GRAVEL (GP) with SAND, trace SILT, F-1.

AW Municipal Common	OTHER TESTS	PLATE
A.W. Murfitt Company consulting engineers & testing		

PROJECT_Public_Health_Service, Takotna, AK	JOB. NO. 91-202.13
OCATION OF PROJECT <u>Takotna</u> , <u>Alaska</u>	BORING / TEST PIT NO. 3
SAMPLE NO. 3-1	DEPTH OF SAMPLE <u>3 Ft. 2 In.</u>
TECTED BY IND / NIM	DATE OF TESTING 7/27 to 9/16/01



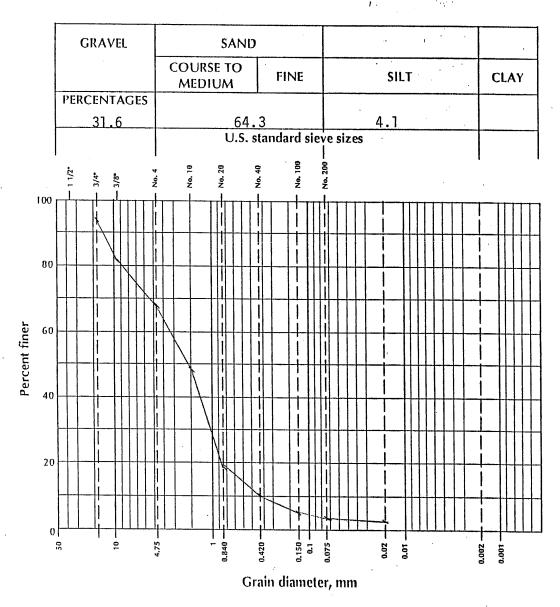
SOIL DESCRIPTION 14.2% Natual Moisture, 13.5% -0.02 mm., 11.5% Organics

Permeability, k= 1.8 x 10⁻³ cm/sec.

SOIL CLASSIFICATION SANDY GRAVEL (GP) with SILT, F-2.

ANVINECLE	OTHER TESTS	PLATE
A.W. Murfitt Company		
CONSULTING ENGINEERS & TESTING		

PROJECT <u>Public Health Service</u> , <u>Takotna</u> , <u>AK</u>	JOB. NO. 91-202.13
OCATION OF PROJECT Takotna, Alaska	BORING / TEST PIT NO. 3
SAMPLE NO. 3-2	DEPTH OF SAMPLE 6 Ft. 4In.
TESTED BY JDR/AWM	DATE OF TESTING 7/27 to 8/16/91



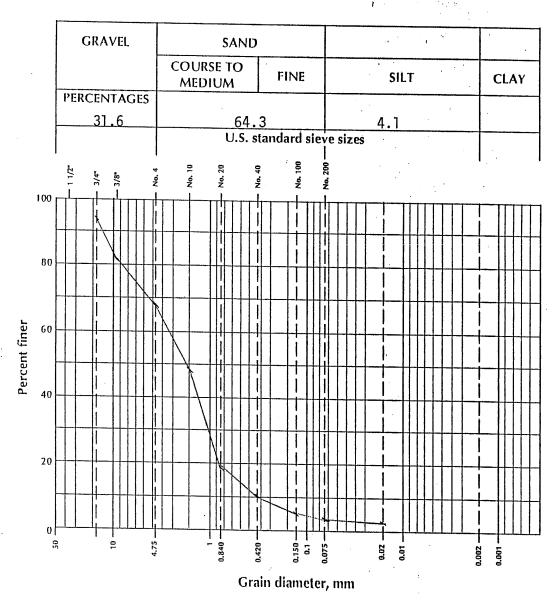
SOIL DESCRIPTION 6.4 % Natual Moisture, 3.0 % -0.02 mm., 9.0 % Organics

Permeability, k= 2.8 X 10⁻² cm/sec.

SOIL CLASSIFICATION GRAVELLY SAND (SP) trace SILT, F-1.

AW/ MariCar C	OTHER TESTS	PLATE
A.W. Murfitt Company consulting engineers & testing		

PROJECT <u>Public Health Service, Takotna, AK</u>	JOB. NO. 91-202.13
OCATION OF PROJECT Takotna, Alaska	BORING / TEST PIT NO. 3
SAMPLE NO3_2	DEPTH OF SAMPLE 6 Ft. 4In.
TESTED BY JDR/AWM	DATE OF TESTING 7/27 to 8/16/91



SOIL DESCRIPTION 6.4 % Natual Moisture, 3.0 % -0.02 mm., 9.0 % Organics

Permeability, k= 2.8 X 10⁻² cm/sec.

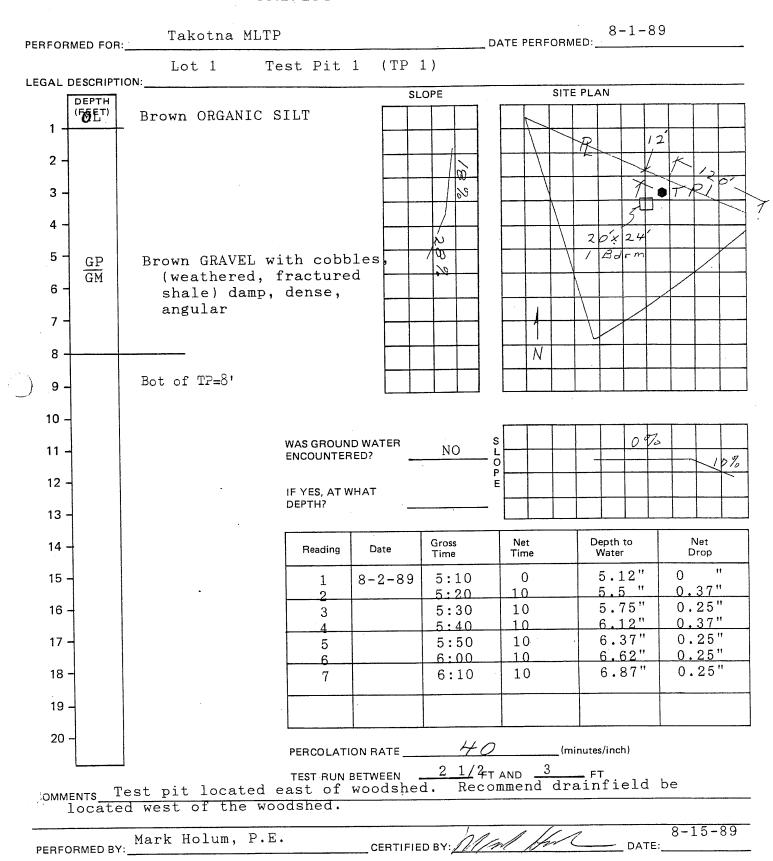
SOIL CLASSIFICATION GRAVELLY SAND (SP) trace SILT, F-1.

AW Murfitt Company	OTHER TESTS	PLATE
A.W. Murfitt Company CONSULTING ENGINEERS & TESTING		

☑ SOILS LOG

SOILS LOG - PERCOLATION TEST

PERCOLATION TEST



☑ SOILS LOG

Figure 20

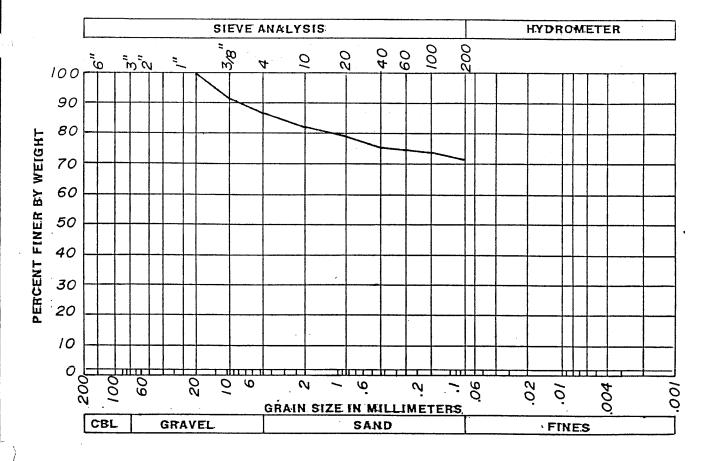
SOILS LOG - PERCOLATION TEST

PERCOLATION TEST

					•		
PERFO	RMED FOR	a:Takotna MLT	P		DATE PERFORM	иED:	9
LEGAL	DESCRIPT	Lot 6 Te	est Pit 2				
	DEPTH (FEET)		1	SLOPE	SIT	E PLAN	
1	(传播)	Brown SILTY GR.	AVEL, damp				
_		_]]]		
2	ML	Brown SILT w/					2/40/1
3 -	4	damp, medium to med. plas				TP4 917	23 17 1
, .		to med. pras	crerey				177
4 ·				100		25 X	140' BE
5	1				TAB		drm -840)
6							+
		Bot of TF=6'			1	1 1 1 2 7	6 A
7	1			00		11-4-7	
8 -	1 1				 		
\ _					1/2 2 2 2], 	
) 9					1 200	1	
10 -	-						
11 -	-		WAS GROUND WA	TER NO	s L		3 %
12]				_ O _	$++\mp$	
		,	IF YES, AT WHAT DEPTH?				
13	†						
14			Reading Da	Gross Time	Net Time	Depth to Water	Net Drop
15	-						,
16	-						
17	-						
18	-						
19	-						
20	_						
			PERCOLATION RA	ATE	(mi	nutes/inch)	
			TEST RUN BETWI	EEN	FT AND	_ FT	
MMG	ENTS		<u></u>	 			
		Mark Holum, P.E	•		12 2 (8-15-89

PERFORMED BY: __

U.S. STANDARD SIEVE SIZE



PROJECT: Takotna MLTP

LOT: 6

TEST PIT: 2

DEPTH: 5'

UNIFIED SOIL CLASSIFICATION: ML

SOIL TEXTURAL CLASSSIFICATION: Nonplastic Sandy Silt

U.S. STANDARD	PERCENT
SIEVE SIZE	PASSING
3 "	
2 "	
1 1/2"	
1 "	
3/4"	100
3/8"	92
#4	87
#10	82
#20	79
#40	76
#60	75
#100	74
#200	72

ALASKA SOIL TESTING AND ENGINEERING

GRAIN SIZE DISTRIBUTION

☑ SOILS LOG

SOILS LOG - PERCOLATION TEST

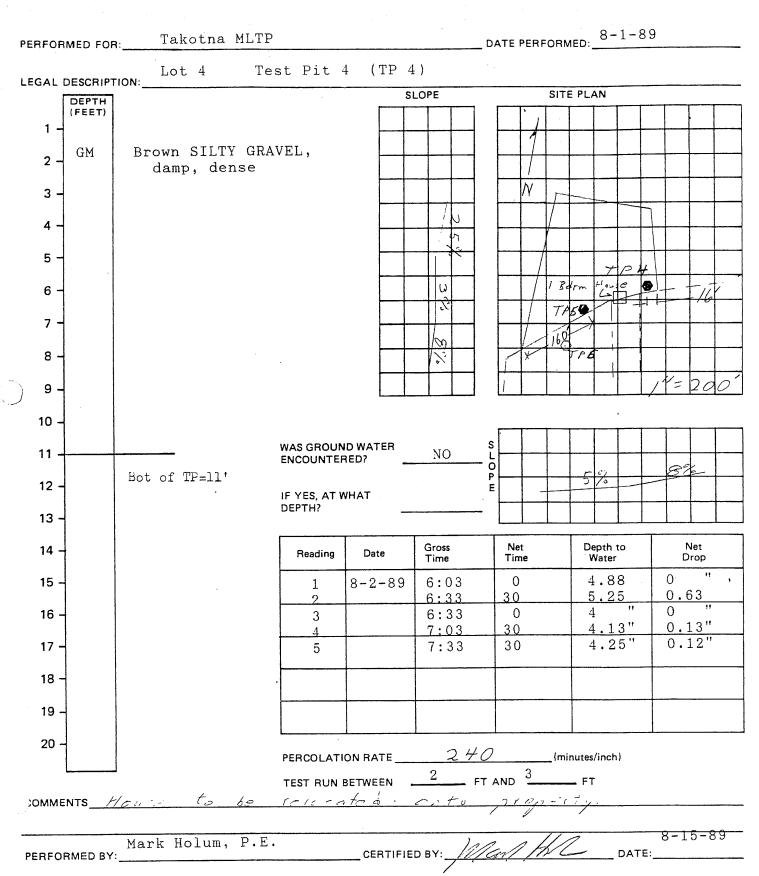
PERCOLATION TEST

PERFORME	FOR:	Takotna M	LTP			DATE PERFORM	ED: 8-1-	89	
LEGAL DES	CRIPTION	Lot 6	Test Pit						
	PTH ET)			s	LOPE	SITE	PLAN		
1 -									
2 -	ML	Brown SILT w							X-8
3 -		damp, medito med. pl		low			7P40	30' -	1-/
4 -		_			120		447	1/AP3	4
5 -				-	$+\dagger++$	TP6		1 Pagin	\dashv
6 -					+	, , ,		Hou E	\forall
7 +					100		LO	76	型
8 -		Eot of TF=7'					_		
9 -			·	<u> </u>		,			
10 –			WAS GROUN	D WATER		s	·	5.	
11 -			ENCOUNTER		NO	L O P		= 1/2	
12 -		•	IF YES, AT W	/HAT		E			
13 -			521 111.						
14 –			Reading	Date	Gross Time	Net Time	Depth to Water	Net Drop	
15 –									1
16 –									
17 -									
18 -				-				1	
19 –							-		
20 –			<u> </u>		<u> </u>				
						(mii			
OMMENTS	S					I AND			
	3.7	D	F		11	1 1//		8-15-8	9
PERFORME		ark Holum, P	• E •	CERTIFIE	D BY: ///	11/1/1	DATE	E:	

☐ SOILS LOG

SOILS LOG - PERCOLATION TEST

PERCOLATION TEST



□ SOILS LOG

SOILS LOG - PERCOLATION TEST

PERCOLATION
TEST

		m - 1		MIMD) 1			
PERFO	RMED FOR	:Tal	Kotna	MLIP		*		DA	TE PERFORM	MED:	3-1-	59		
LEGAL	DESCRIPT	Lot	4	Test	Pit	5 (TP		- 70						
	DEPTH (FEET)						SLOPE		SIT	E PLAN				
1 -	1							_						
2 -	ML	Brown	SILT,	damp,				_	111					
3 -		med	ium st					- 	- N -					
4 -		1011	proc	3								7		
_								/v [
5 -							()				TP	/		
6 -							1 4	_	1 / 1	drm Ho				
7 -							1 100	\dashv \vdash	TAL	X	-	<u> </u>		
8 -							20	1	160	P6			\vdash	
) 9-											$\parallel \parallel$	1=	20	0
10 -		Bot of	TP=9'			A						· · · · · · · · · · · · · · · · · · ·	<u> </u>	
11 -					S GROUN	ND WATER RED?	NO	s L	75			8%		
12 -								O P E		0		_		
13 -					YES, AT V PTH?	VHAI					++			
14 -					Reading	Date	Gross		Net	Depth	to		vet	
15 -					reading	Date	Time		Time	Wate	r		rop	,
16 -														
17 -											.,			
18 -				-										
				•										
19 -														
20 -				PEI	RCOLATI	ON RATE _			(mir	nutes/incl	n)			
				TE	ST RUN E	BETWEEN			D					
OMME	NTS	House to	be re	located	ento	property	· .							<u></u>
•		Mark Ho	Jum	D F			· · · · · · · · · · · · · · · · · · ·					8-1	5-8	9 -
PERFO	RMED BY:_	mark no	· · · · · · · ·	1 . 1.		CERTIFI	ED BY:	Men	1/1/	7	DATE:	0 1	5 0	J

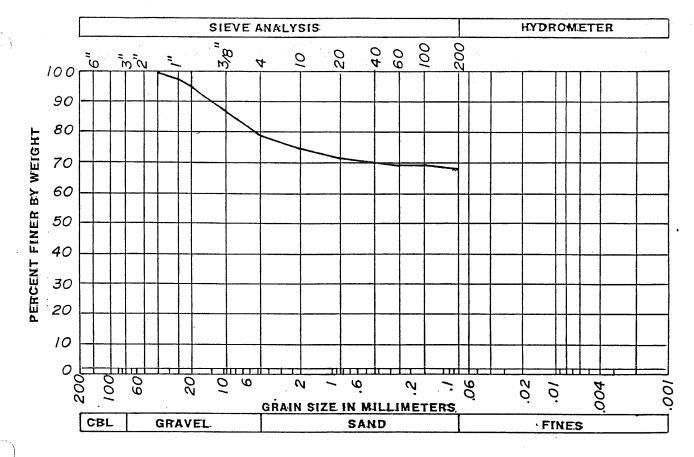
☑ SOILS LOG

Figure 14

SOILS LOG - PERCOLATION TEST

PERFORM	ED FOR:	Tal	kotna MI	ъТР			_ DATE PERFORME	8-1-8	39
		Lot	5 T	Gest Pit (6 (TP 6		-		
· · · · · · · · · · · · · · · · · · ·	SCRIPTION:				S	LOPE	SITE I	PLAN	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
1 -	EPTH EET)	medi	SILT, clum stif	lamp, f, l. to		i			12
2 -		PIG					1		TP6
3 –						20	W Ro		
4 -								777 × 3	C.P. (TO)
5 -								1 Bdr	- 17731217
6 -									
7 -								4	
8 -									
9 -							\\\ \\ \ = \X_{-1}	501	
10 –									
11 -		Bot of	TP=10.5'	WAS GROUN ENCOUNTE	ND WATER RED?	NO	- O	5	0
12 -				IF YES, AT V	WHAT		PE		
13 -									
14 –				Reading	Date	Gross Time	Net Time	Depth to Water	Net Drop
15 –				1 2	8-2-89	6:53 7:23	0 30	6 " 6.75"	0 " · 0.75"
16 –				3 4		7:53 8:23	30	7.12" 7.5 "	0.37" 0.37"
17 -									
18 -									lija.
19 –									
20 -				PERCOLATI	ON RATE		(minu		
				TEST RUN	BETWEEN .	3 F	TAND $\frac{3}{1/2}$	FT	
DMMENT									
PERFORM		ark Ho	lum, P.	Ε.	CERTIFIE	DBY: ///	full both	DATE:	8-15-89

U.S. STANDARD SIEVE SIZE



PROJECT: Takotna MLTP

LOT: 5

TEST PIT: 6

DEPTH: 7'

UNIFIED SOIL CLASSIFICATION: ML

SOIL TEXTURAL CLASSSIFICATION: Nonplastic Sandy Silt

U.S. STANDARD	PERCENT
SIEVE SIZE	PASSING
3 "	
2"	
1 1/2"	100
1"	97
3/4"	95
3/8"	87
#4	79
#10	74
#20	72
#40	70
#60	69
#100	69
#200	68

ALASKA SOIL TESTING AND ENGINEERING

SOILS LOG

SOILS LOG - PERCOLATION TEST

☐ PERCOLATION TEST

Figure 27

PERFOR	RMED FOR	:Takotna MLTF) 			_ DATE PERFORM	8-1-8	9
	DESCRIPT	Lot 9 Te						
1 -	DEPTH (FEET) ML	Brown GRAVELLY	SILT w/		LOPE	SITE	PLAN	
2 - 3 -					15	N	105/	75-Y
4 - 5 -	GP GM	Brown GRAVEL, of angular, (wea fractured sha	athered,		1 /2			18'x 24' 1 Bd rm
6 - 7 -		dense						And. Const.
8 -) 9 -						1"=15	01	
10 – 11 –		Bot of TP=9'	WAS GROUN ENCOUNTER		NO	s S		0 %
12 - 13 -			IF YES, AT V DEPTH?	VHAT —		E		
14 -			Reading	Date	Gross Time	Net Time	Depth to Water	Net Drop
15 –			. 1 2	8-3-89	9:44 9:54	0 10	10.25" 12.0"	0 " · 1.75"
16 -			3 4		10:04 10:14	10	14.5 " 16.25"	2.5 " 1.75"
17 -			5 6		10:14 10:24	0 10	11.0 " 12.5 "	0 " 1.5 "
18 -			. 7		10:34 10:44	10	14 " 15.25"	1.5 " 1.25"
19 –								
20 -			PERCOLATION E	ON RATE	3	(min	utes/inch) 2 FT	
CIVITALE		Mark Holum, P.E.				1 , 4		8-15-89

☐ SOILS LOG

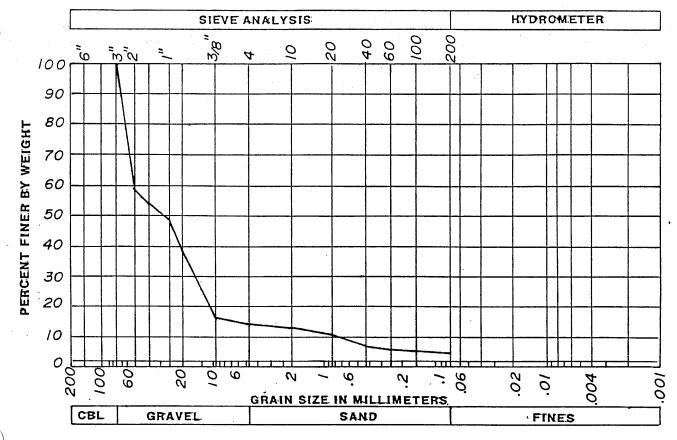
SOILS LOG - PERCOLATION TEST

☐ PERCOLATION TEST

PERFOR	RMED FOR:_	Takotna MLT	Р			_ DATE PERFORM	ED: 8-2-8	39
	DESCRIPTIO	Lot 13 Test		TP 8)				
	DEPTH				SLOPE	SITE	PLAN	
1 -	(FEET) ML	Brown SILT wit gravel, damp				1'=100	/	
2 -		<u> </u>						
3 -								
4 -								
5 -	GP	Brown GRAVEL, angular, (we						TP8
6 - 7 -		fractured sh dense			9 %		1	7 - 50 T
8 -								BE \
9 -							HOUGE	\$ P
10 –						\		
11 -			WAS GROUN ENCOUNTER		NO	s		06%
12 -		Bot of TP=11'	IF YES, AT W	/HAT		E		
13 -								
14 - 15 -			Reading	Date	Gross Time	Net Time	Depth to Water	Net Drop
16 -								
17 -		۲				125 65	ET /~	
18 -			.1		1	= 125 SQ 1.0 - 11.0 P	}	DRM .
19 -			/*	EINE		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
20 -			PERCOLATIO	ON RATE		(mi	nutes/inch)	
OMME			TEST RUN E	BETWEEN		FT AND	_ FT	
	-	Mark Holum, P.E	•			1.1111		8-15-89
PERFO	RMED BY:			CERTIFI	ED BY: <i>[[</i>]	Mand Hot	DATE	·

Figure 35

U.S. STANDARD SIEVE SIZE



PROJECT: Takotna MLTP

LOT: 13

TEST PIT: 8

DEPTH: 6'

UNIFIED SOIL CLASSIFICATION: GP

SOIL TEXTURAL CLASSSIFICATION: Poorly Graded Gravel

U.S. STANDARD	PERCENT
SIEVE SIZE	PASSING
3"	100
2 "	59
1 1/2"	54
1 ''	48
3/4"	38
3/8"	17
= 4	14
= 10	13
=20	11
# 40	8
#60	6
#100	5
#200	4

ALASKA SOIL TESTING AND ENGINEERING

ALASKA SOIL TESTING AND ENGINEERING 6100 A Street, Anchorage, Alaska 99502

(907) 561-7453

SOILS LOG

SOILS LOG - PERCOLATION TEST

PERCOLATION TEST

		Tolotno MIT	ח		•				0.00	1	
	MED FOR:					DATE	PERFORM	иеD: <u>8</u>	-2-85		
LEGAL	DESCRIPTION	Lot 15 Test	Pit 9	(TP 9)						, -	
	DEPTH (FEET)	Drawn Clit da	mn+:	p	LOPE		SIT	E PLAN	, 71	T	4-17
1 -	ML	Brown SILT, da	mp, sti			NT	/	= 100		T	
2 -										+ #	; }_
3 -	·										P9
4 -					0		-	HOU IND.	DN 57	4	
5 -	GP	Brown GRAVEL,	damp.	-		<u> </u>		181	DR.	++	
6 -		angular, (we	athered	,							
7 -		fractured sh dense	aie,				$\dagger \setminus \dagger$			++	
8 -							<u> </u>				
) 9-						L	<u> </u>				R-
10 –						_	}	/	2011	י. די ד	
11 -			WAS GROUN ENCOUNTER		NO	s L O					5/0
12 -		Bot of TP=11.5'	IF YES, AT V	NHAT		P					
13 -			DEPTH?								
14 –			Reading	Date	Gross Time	Ne Tin		Depth 1 Water		Ne Dro	
15 –					-						,
16 -											
17 -											
18 -			. V.15 U	AL RA	T/NG =	- / 2	_5 50	FT.	184	<u> </u>	1
19 –			3	BTNFE	N 1.5	- - /	11.5	FT.			
20 –			DEDOC: 47:	ONBATE			1			P. 14. A. 14	
l				ON RATE BETWEEN _					1		
ОММЕ	NTS	,		DE I WEEK						· · · · · · ·	
DEDECE	MED DV	íark Holum, P.E.		OFFICIE	D. D.V. 1/1/1		1 44.	1	DATE	8-15	-89
rentuh	MINED RA:	fark Holum, P.E.		CERTIFIE	10 6 T. 1/1/1	in	1111		Figu:	re 3	9

ALASKA SOIL TESTING AND ENGINEERING

6100 A Street, Anchorage, Alaska 99502 (907) 561-7453

SOILS LOG

SOILS LOG - PERCOLATION TEST

PERCOLATION
TEST

PERFORMED FO	R:Takotna MLTP		·		_ DATE PERFORMED	8-2-89)
LEGAL DESCRIP	Lot 17 Test l	Pit 10	(TP ·10)				
DEPTH]		SI	LOPE	SITE PL	AN	
1 - (FEET)	Brown SILT, damp	, stif	f			n P-	
2 -	-		-			e and	TOIO
3 -					1	6 T L	14357
4 - _{GP}	Brown GRAVEL, da	ımp.		1-0	1	BDR 80	¥ I
5 - GM	angular, (weat	athered,		00		TATO	VER
6 -	dense	,		+++		1 1 1	
7 -							,
8 –							
9 -	•		-			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	to!
10 -			<u> </u>		L	<u> </u>	-1 1 1
11 -		VAS GROUN		NO	S L		707
12 -	20+ of TD=11 5!	ENCOUNTER			- O P E	-	10/0
13 -	· '	F YES, AT V DEPTH?	VHAT		-		
14 –	ſ	Reading	Date	Gross		epth to	Net
15 –	-	1	8-3-89	3:20	0	Water 5 ''	O " ,
16 –		<u>2</u> 3		3:30 3:40		Dry/1. Dry/1.	
17 -		<u>4</u> 5		3:50 4:00	10	11	,
18 -		6 7		4:10 4:20	10	Dry/2 Dry/2	min.
19 –		1		1.20		,	
20 –		PERCOLATI	ON RATE	0.3	(minute	s/inch)	
COMMENTS		TEST RUN	BETWEEN _	F	TAND $\frac{4 1/2}{}$ F	Т	
COMMENTS			·				

PERFORMED BY: